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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

RAO, S

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 06/09/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/008,497

Applicant(s)
Inoue, Hiroyuki

Examiner
S.H. Rao

Group Art Unit
2814



☒ Responsive to communication(s) filed on Mar 29, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

- ☒ Claim(s) 1-10 and 21-40 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-10 and 21-40 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s) _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

The amendment filed March 29, 2000 has been entered . Therefore claims 1 as amended and claims 21-40 newly added and claims 2-10 as originally filed are currently pending in the application.

Claim Rejections - 35 U.S.C. § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 and 21-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu or Matthews and Kwon as applied to claims 1-10 previously, and further in view of Giammarco et al. (U.S. Patent No. 4,871,630, herein after Giammarco).

With respect to claim 1 Chiu or Matthews in combination with Kwon disclose the steps of manufacturing a semiconductor device with a buried conductive layer connected to s/d of a Mos transistor.

Chiu or Matthews in combination with Kwon does not specifically disclose the gate electrode having a width equal to the minimum size possible with a lithographic process.

However, Giammarco discloses in its Abstract, Col. 1 lines 60-65 and Col. 5 lines 15-34 teaches the formation of openings of a minimum size smaller than possible by lithography that can

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be use for a variety of purposes so that devices with scaled down dimensions can be obtained beyond lithographic dimensions.

At the time of the invention a person of ordinary skill in the art would have been motivated to use Giammarco's openings of a minimum size smaller than possible by lithography in Chiu or Matthews and Kwon's method steps to form openings of a minimum size smaller than possible by lithography that can be use for a variety of purposes so that devices with scaled down dimensions can be obtained beyond lithographic dimensions.

Therefore it would be obvious to combine the teachings of Chiu or Matthews and Kwon with Giammarco to arrive at the recitation of claim 1.

Claims 2-5 and 6-9 are alleged to be allowable because they depend on allowable claim 1 (because claim 1 recites sublithographic dimension holes). However as shown above claim 1 is obvious and therefore claims 2-9 are also rejected.

Newly added claims 21-40 are rejected for the reasons stated below:

Claim 21 repeats the steps of claim 1 and therefore the rejection under claim 1 is incorporated here by reference.

Claim 22 describes the the distance between the two conductive layers as $1/3$ of the minimum processing size feature, the mere recitation of a range without any showing of unexpected results or criticality does not patentably distinguish it over the prior art.

Claim 23 -27,30 the two conductive layers and the mask layer of insulating film is repeated from claim 1.

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Claims 28-29 the slower etching rate is disclosed in Giammarco col. 3 lines 47.

Claims 31-33 repeat the steps of 28, 29 and 22.

Claims 34 -37 repeat the steps of claim 23 -26 except for calling the hole in calism 23-26 contact holes in claim 23-26.

Claim 37 repeats the steps of claim 28. Claim 38 repeats the steps of calim 21.

There is no claim 39. Claim 40 repats the steps of claim 21.

Claims

However as shown above this feature is well known in the art, therefore claims 21-40 are also rejected.

Response to Arguments

Applicants arguments filed March 29, 2000 have been considered, but are not persuasive because of the newly cited art renders obvious the added limitations to the claims.

Applicant's amendment and arguments necessitated the a new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Steven H. Rao whose telephone number is (703) 306-5945. The fax number is (703) 308-7722 or -7724. The Examiner can be normally reached on Monday-Friday from 9.30 a.m. to 6.00 p.m. (EST).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor (SP) Olik Chaudhuri, can be reached at (703) 306-2794.

7. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission at the above mentioned fax numbers.

8. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology center 2800 receptionist at (703) 308-0956.



May 31, 2000.


OLIK CHAUDHURI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800